

WHAT IS CLAIMED IS:

1. A method of manufacturing a semiconductor device, the method comprising:

5 preparing a first substrate including an integrated circuit chip, first connection terminals electrically connected to terminals of the integrated circuit chip, and a first connection portion spaced from the first connection terminals;

10 preparing a second substrate including second connection terminals to be electrically connected to the first connection terminals and a second connection portion spaced from the second connection terminals;

15 providing a metal material portion for bonding on the first connection portion or the second connection portion; and

stacking the first substrate and the second substrate by connecting the first connection portion and the second connection portion together via the metal material portion by thermo compression bonding.

20 2. The method of manufacturing a semiconductor device according to claim 1, further comprising stacking unit substrates each formed of the first and second substrates stacked.

25 3. The method of manufacturing a semiconductor device according to claim 2, wherein stacking the unit substrates includes bonding the unit substrates adjacent to each other in a stacking direction using

an adhesive sheet.

4. The method of manufacturing a semiconductor device according to claim 1, wherein the first connection portion is a first dummy terminal provided between the first connection terminals adjacent to each other in a plane direction, and the second connection portion is a second dummy terminal provided between the second connection terminals adjacent to each other in the plane direction.

5. The method of manufacturing a semiconductor device according to claim 1, wherein the first connection portion is a first dummy pad provided on the first substrate, and the second connection portion is a second dummy pad provided on the second substrate.

6. The method of manufacturing a semiconductor device according to claim 1, wherein the first connection portion is a first alignment mark provided on the first substrate and used to align the first substrate with the second substrate, and the second connection portion is a second alignment mark provided on the second substrate and used to align the first substrate with the second substrate.

7. The method of manufacturing a semiconductor device according to claim 1, wherein the metal material portion is formed of solder, tin, or an Sn-Bi alloy.

8. The method of manufacturing a semiconductor device according to claim 3, wherein the adhesive sheet

is formed of resin.

9. A semiconductor device comprising:

5 a first substrate including an integrated circuit chip, first connection terminals electrically connected to terminals of the integrated circuit chip, and a first connection portion spaced from the first connection terminals;

10 a second substrate stacked on the first substrate and including second connection terminals and a second connection portion spaced from the second connection terminals; and

15 a metal material portion provided between the first connection portion and the second connection portion and bonding the first connection portion to the second connection portion.

10. The semiconductor device according to claim 9, wherein a plurality of unit substrates are stacked, each of the unit substrates being formed of the first and second substrates stacked.

20 11. The semiconductor device according to claim 10, further comprising an adhesive sheet interposed between the unit substrates adjacent to each other in a stacking direction and bonding the unit substrates together.

25 12. The semiconductor device according to claim 9, wherein the first connection portion is a first dummy terminal provided between the first connection

terminals adjacent to each other in a plane direction,  
and the second connection portion is a second dummy  
terminal provided between the second connection  
terminals adjacent to each other in the plane  
5 direction.

13. The semiconductor device according to claim 9,  
wherein the first connection portion is a first dummy  
pad provided on the first substrate, and the second  
connection portion is a second dummy pad provided on  
10 the second substrate.

14. The semiconductor device according to claim 9,  
wherein the first connection portion is a first  
alignment mark provided on the first substrate and used  
to align the first substrate with the second substrate,  
15 and the second connection portion is a second alignment  
mark provided on the second substrate and used to align  
the first substrate with the second substrate.

15. The semiconductor device according to claim 9,  
wherein the metal material portion is formed of solder,  
20 tin, or an Sn-Bi alloy.

16. The semiconductor device according to  
claim 11, wherein the adhesive sheet is formed of  
resin.

17. A method of manufacturing a semiconductor  
25 device, the method comprising:

preparing a plurality of unit substrates each  
comprising a first substrate and a second substrate

stacked, the first substrate including an integrated circuit chip and first connection terminals electrically connected to terminals of the integrated circuit chip, the second substrate including second connection terminals electrically connected to the first connection terminals; and

stacking the unit substrates by bonding the unit substrates adjacent to each other in a stacking direction using an adhesive sheet.

18. The method of manufacturing a semiconductor device according to claim 17, wherein the adhesive sheet is formed of resin.

19. A semiconductor device comprising:

a plurality of unit substrates each comprising a first substrate and a second substrate stacked, the first substrate including an integrated circuit chip and first connection terminals electrically connected to terminals of the integrated circuit chip, the second substrate including second connection terminals electrically connected to the first connection terminals; and

an adhesive sheet interposed between the unit substrates adjacent to each other in a stacking direction and bonding the unit substrates together.

20. The semiconductor device according to claim 19, wherein the adhesive sheet is formed of resin.